Exploring Multiples on a Fifty Board

You will begin at all the following numbers below on a Fifty Board. DO NOT put a dot in the first box, but put a colored dot in all succeeding multiples of that number.

* Multiples of 2 = Red
* Multiples of 3 = Green
* Multiples of 4 = Blue
* Multiples of 5 = Purple
* Multiples of 6 = Yellow
* Multiples of 7 = Orange
* Multiples of 8 = Black
* Multiples of 9 = Brown
* Multiples of 10 = Gray
* Multiples of 11 = Turquoise
* Multiples of 12 = Pink

Circle the numbers that do not have any colored dots in their box. What does it mean if they do not have any colored dots in the box? What mathematical term do we call these special numbers?

What mathematical term do we call the numbers that have dots in their boxes?

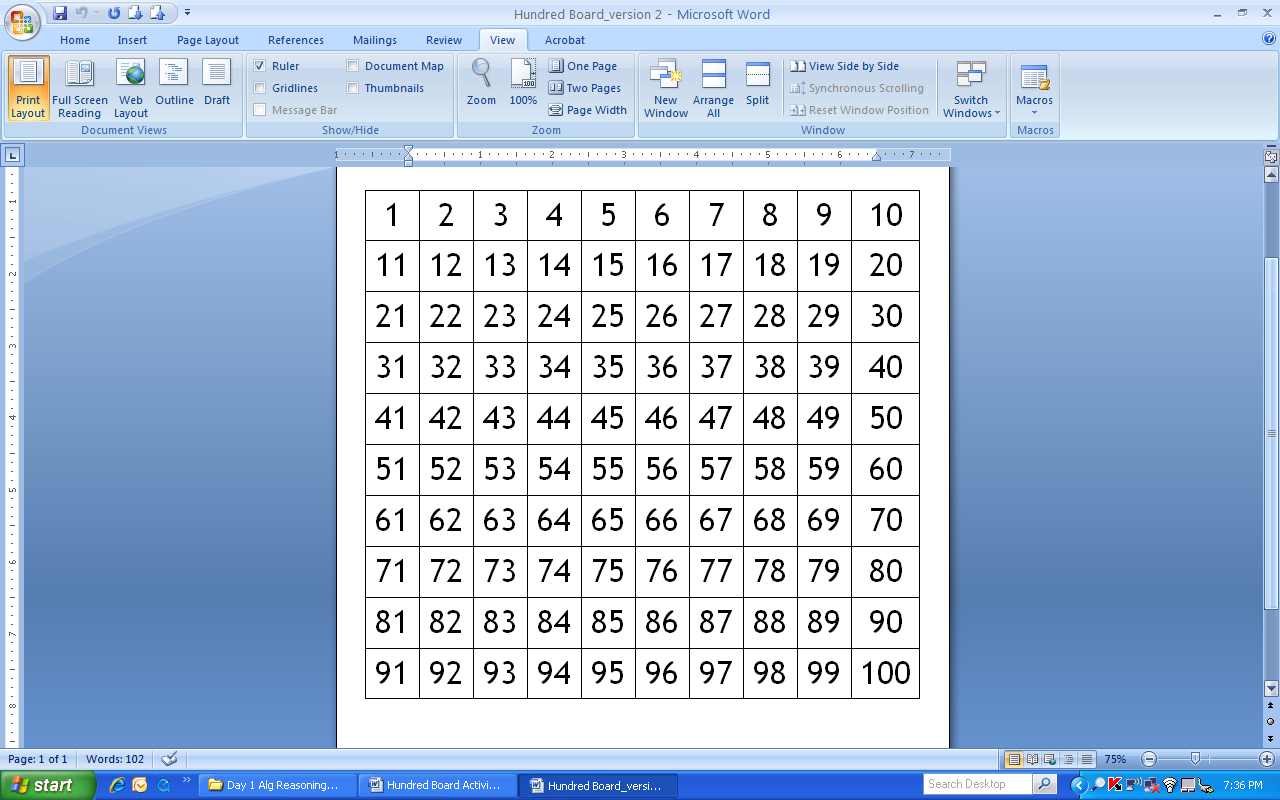
What about the number 1? It does not have any colored dots, so can we call 1 the same mathematical term as above?

**From the Teacher’s Perspective**:

* How could this lesson be extended?
* What connections can be made to other mathematical concepts?

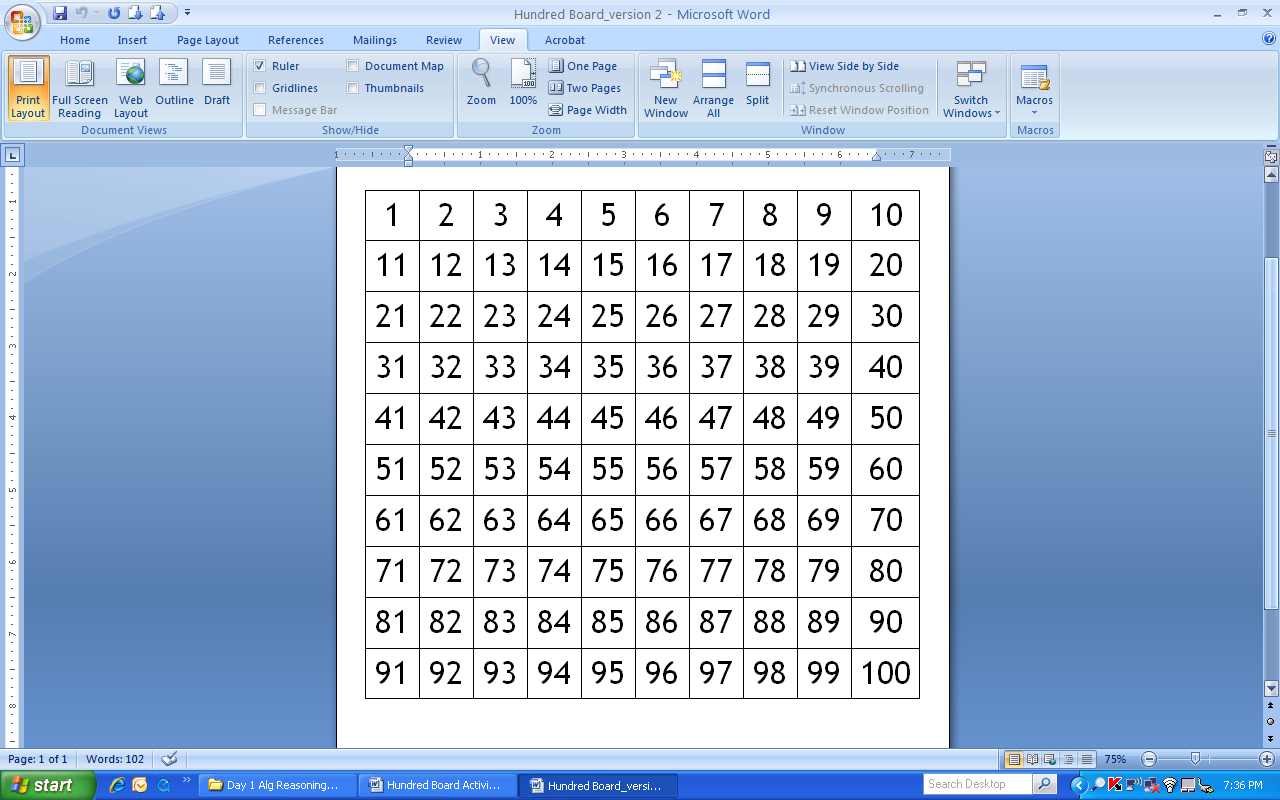
Adaptation of Van de Walle Activity—Start and Jump Numbers

Start with 3 and Skip Count by 5s. Color the Pattern on the Hundred Board

 Record the #s below

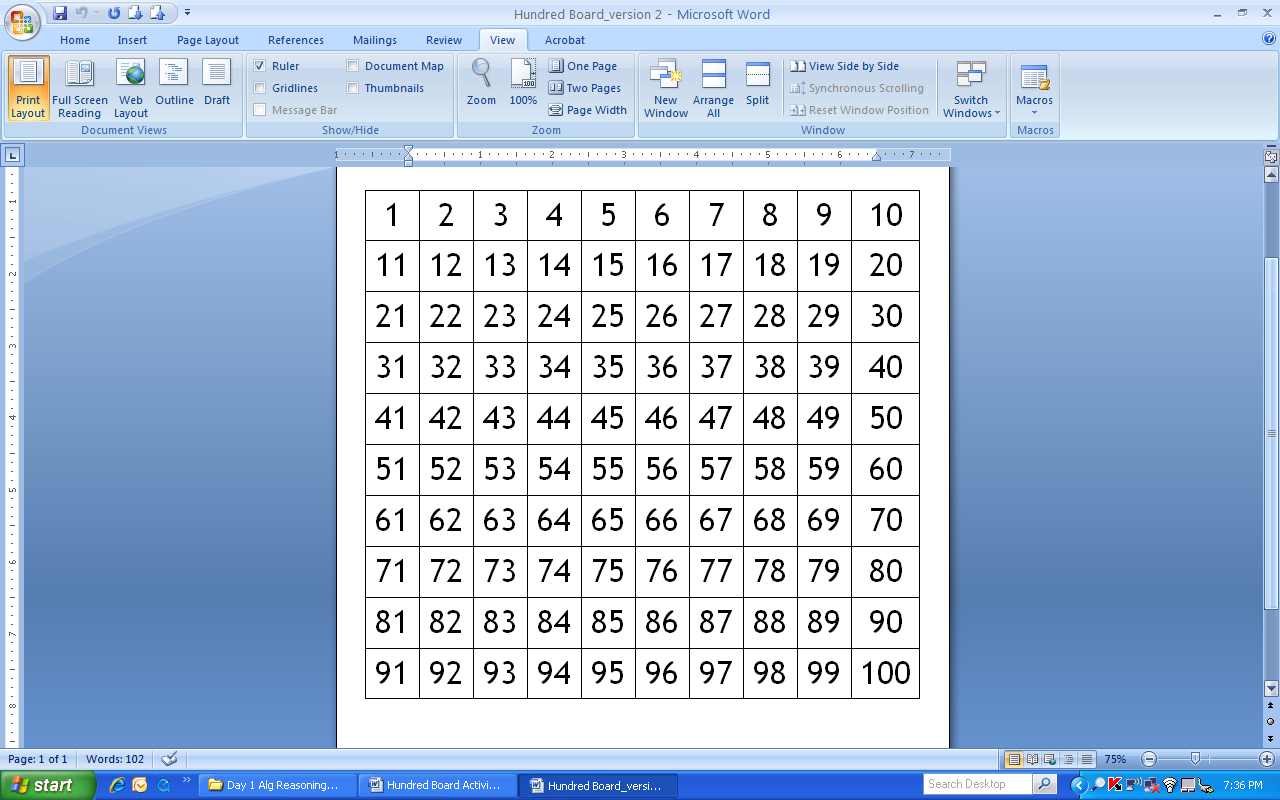
|  |  |
| --- | --- |
| Step # | # in Pattern |
| 1 | 3 |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

Start with 6 and Skip Count by 5s. Color the Pattern on the Hundred Board

 Record the #s below

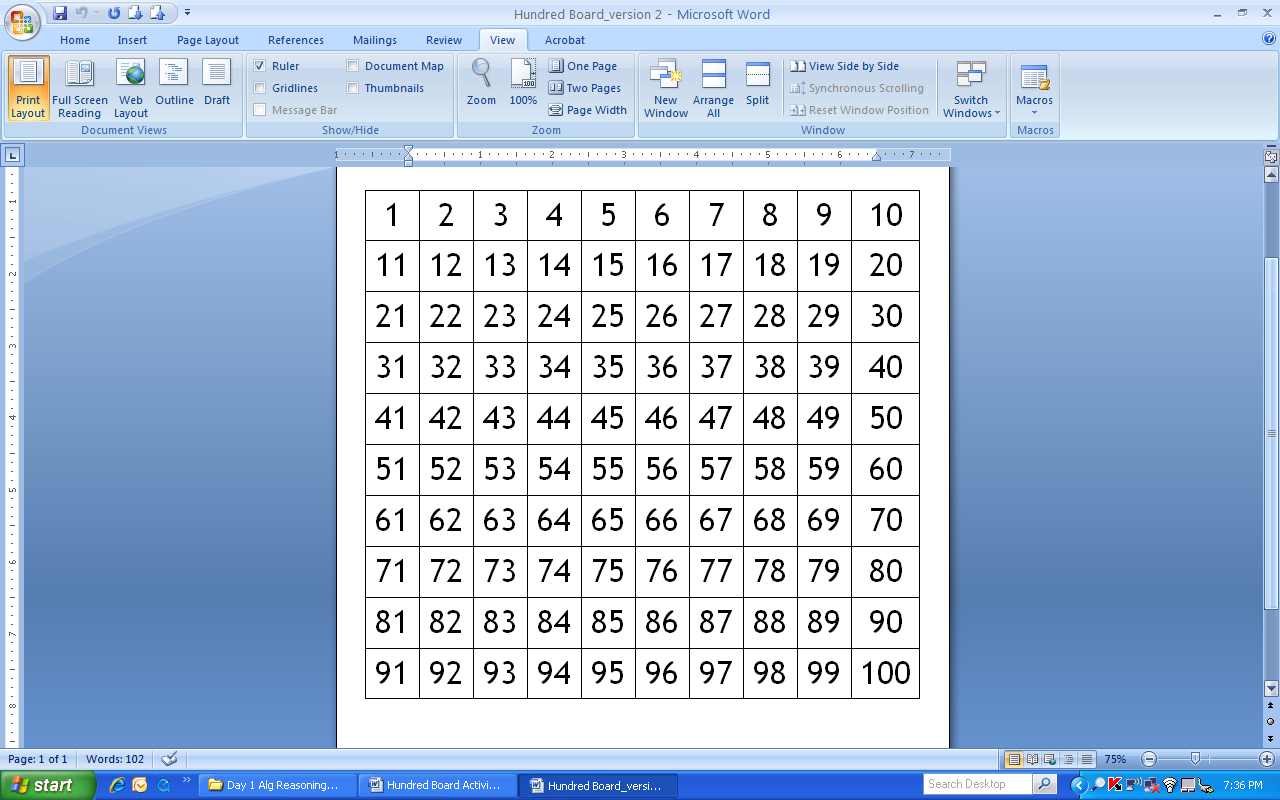
|  |  |
| --- | --- |
| Step # | # in Pattern |
| 1 | 6 |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

Start with 3 and Skip Count by 4s. Color the Pattern on the Hundred Board

 Record the #s below

|  |  |
| --- | --- |
| Step # | # in Pattern |
| 1 | 3 |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

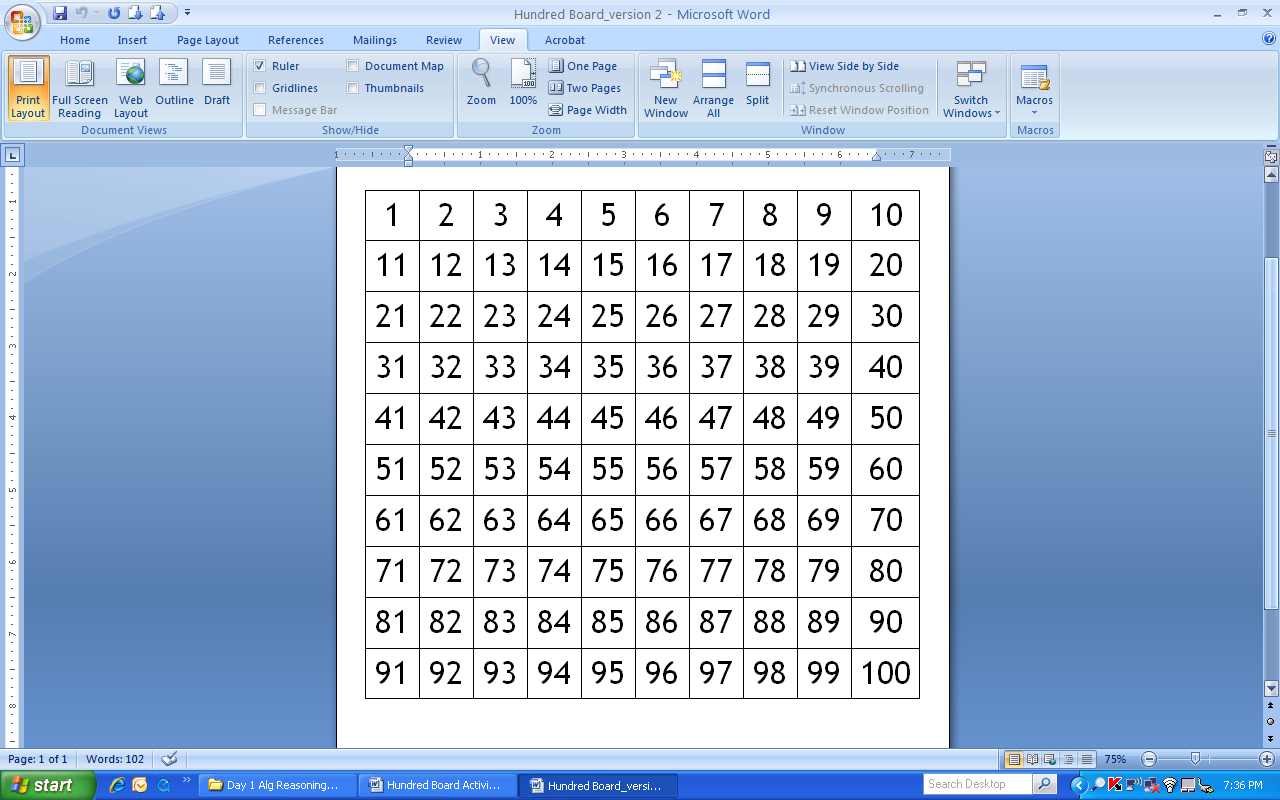
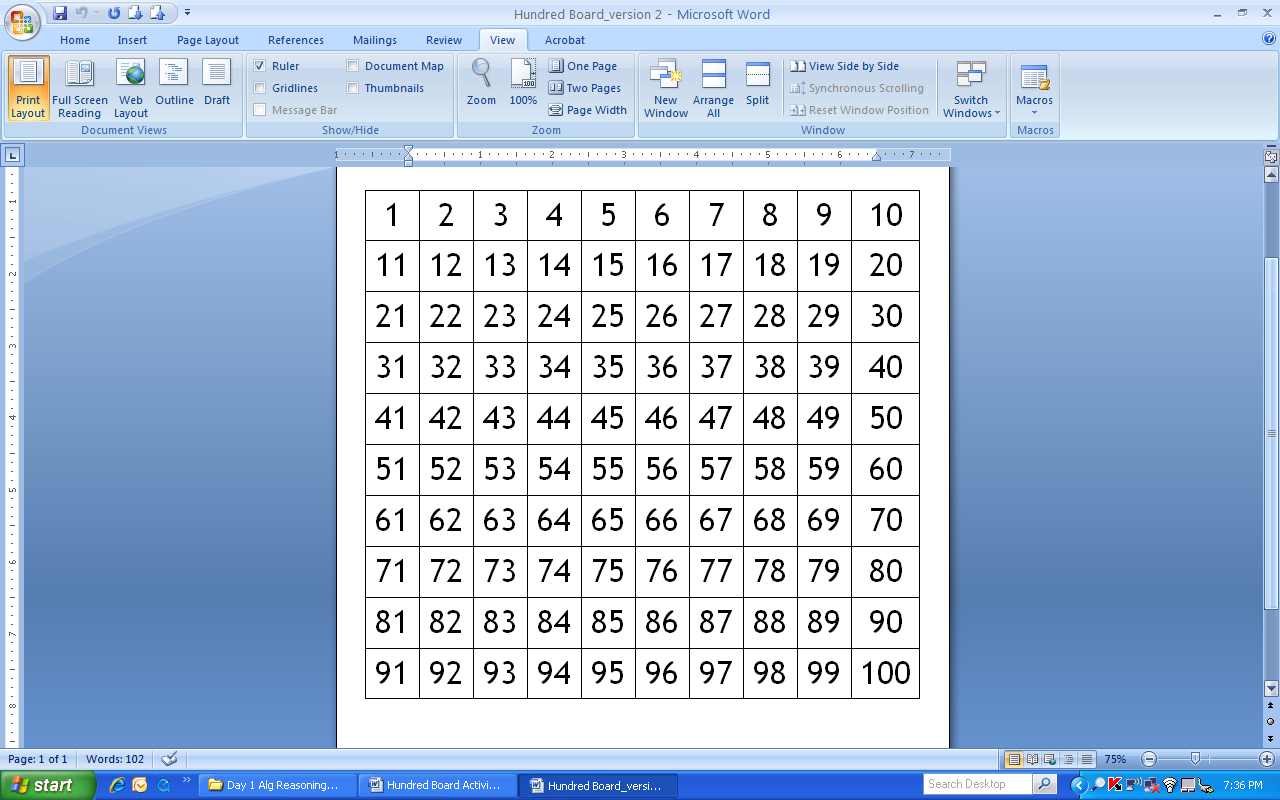
Start with 5 and Skip Count by 4s. Color the Pattern on the Hundred Board

 Record the #s below

|  |  |
| --- | --- |
| Step # | # in Pattern |
| 1 | 5 |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

**From the Teacher’s Perspective**: *Questions to explore…*

* How do patterns change when only the start number changes?
* How are diagonal patterns alike and different for jumps of 4, 6, and 8?

Color your own pattern for Skip Count 6 Color your own pattern for Skip Count 8

* Which skip counts make diagonal patterns and which make column patterns?
* Pick any number between 1 and 100. How can you tell if your pattern will land on that number?

**Other Ideas for Activities**

Adaptation of Van de Walle Activity—What’s Next and Why?

Show students four to five numbers from a number pattern. The task is for students to extend the pattern for 2 to 3 more numbers and to explain the rule for generating the pattern. Here is a short list of patterns to try with students.

2, 4, 6, 8, 10, . . . (even numbers—skip counting by 2)

1, 2, 4, 8, 16, . . . (double the previous number)

2, 5, 11, 23, . . . (double the previous number and add 1)

1, 2, 4, 7, 11, 16, . . . (successively add 1, then 2, then 3, and so on)

1, 4, 9, 16, 25, . . . (squares: 12 , 22, 32, …)

5, 8, 11, 14, 17, . . . (starting at 5—skip counting by 3s)

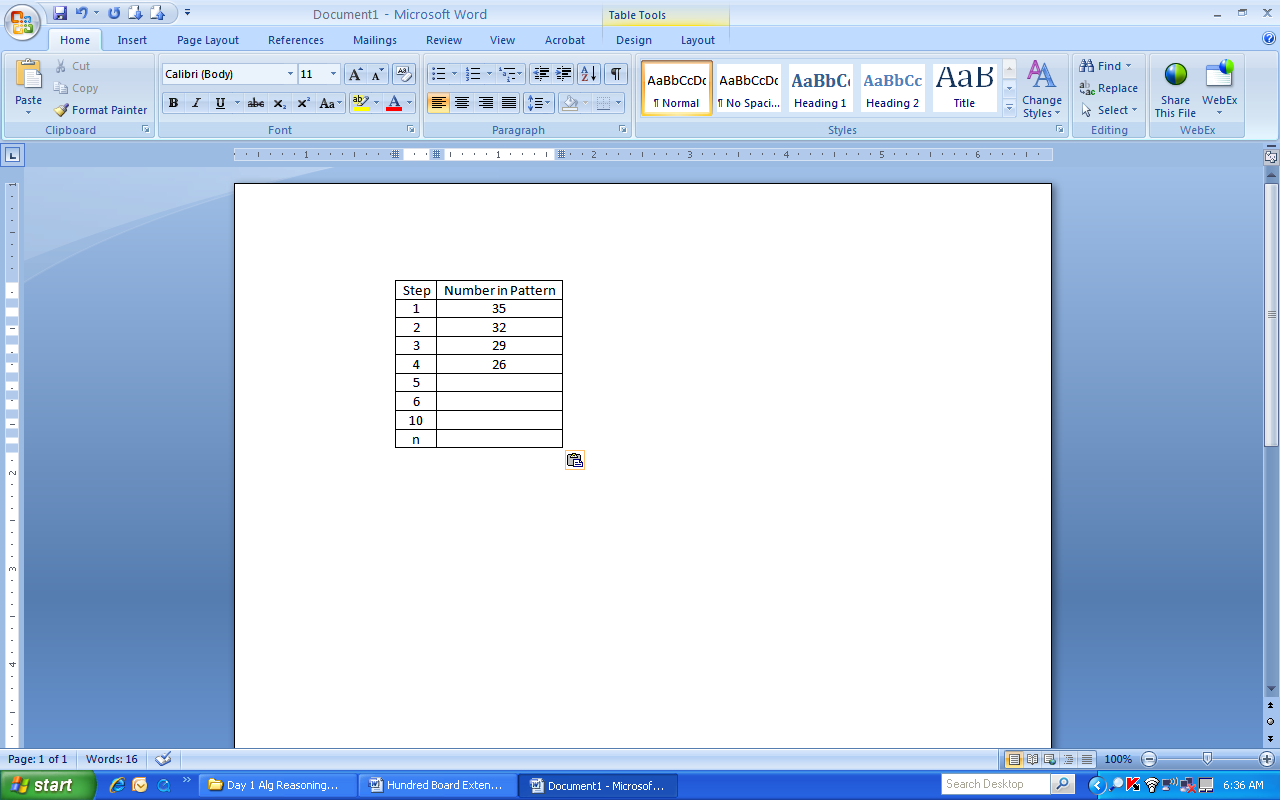
50, 45, 40, 35, . . . (starting at 5, subtracting 5 each time, or back skip counting by 5s)

68, 57, 46, 35, . . . (starting at 68, subtracting 11 each time)

35, 32, 29, 26, . . . (starting at 35, subtracting 3 each time)

How can students use the Hundred Board to help with these patterns?

How can students use a Number Line to help with these patterns?

Can students create a table to uncover patterns? First column of table is the step number and the second column is the number displayed in the pattern. Could they use the table to generate an algebraic rule for the pattern? Can they explain the rule in words? For example, have students explain the process for finding any number in the pattern when given the step number.

|  |  |
| --- | --- |
| Step | Number in Pattern |
| 1 | 5 |
| 2 | 8 |
| 3 | 11 |
| 4 | 14 |
| 5 | 17 |
| 6 |  |
| 7 |  |
| 10 |  |
| n |  |

Related 2009 3rd – 5th Grade TAKS questions











